

Claims

1. A method for producing a composite material comprising phosphorus and silicon, the method comprising the steps:
  - 5 (a) taking a sample of phosphorus;
  - (b) substantially surrounding the sample of phosphorus with a layer of silicon, the layer of silicon comprising a multiplicity of silicon particles;
  - (c) applying heat to the silicon in such a manner that a temperature difference is established between at least part of the silicon layer and the sample of phosphorus, and in
  - 10 such a manner that at least some of the phosphorus is vaporised; and
  - (d) allowing and/or causing at least some of the phosphorus vapour to contact at least part of the layer of silicon in such a manner that a molten composite material comprising silicon and phosphorus is formed.
- 15 2. A method according to claim 1 characterised in that steps (a), (b), and (c) are performed in such a manner that at least part of the silicon layer is heated to a silicon reaction temperature between 900 C and 1500 C.
3. A method according to claim 1 characterised in that the sample of phosphorus
- 20 comprises red phosphorus.
4. A method according to claim 1 characterised in that method comprises the further step (e) of atomising at least part of the molten composite material generated by step (d).
- 25 5. A method according to claim 4 characterised in that the method comprises a further steps: (fi) of cooling and then (fii) porosifying at least some of the composite material formed by step (e).
6. A method according to claim 5 characterised in that the method comprises the further
- 30 step (g) of irradiating at least some of the composite material produced by (fii) with neutrons in such a manner that at least some of the phosphorus is converted to  $^{32}\text{P}$ .
7. A radiotherapeutic product obtainable by a method according to claim 6.
- 35 8. A radiotherapeutic product according to claim 7 for use in the treatment of cancer.